

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

Shallow Water Management for Wildlife

(acre)

Code 646

DEFINITION

Managing shallow water on agricultural lands and moist soil areas for wildlife habitat.

PURPOSES

- To provide open water areas on agricultural fields and moist soil areas to facilitate waterfowl resting and feeding.
- To provide migratory resting and feeding areas for shorebirds.
- To provide habitat for reptiles, amphibians and other aquatic species.
- To provide shallow water habitat for wetland mammals.
- To provide winter cover for open land wildlife.
- To facilitate the conservation of declining wetland dependent and threatened and endangered species.

CONDITIONS WHERE PRACTICE APPLIES

On agricultural and moist soil areas, on both hydric and non-hydric soils, where water can be impounded or regulated by diking, ditching, excavating, or flooding.

This practice applies where the intended purpose is to create and/or manage shallow water for the above purposes. Typically fields are flooded on a rotational or periodic basis.

- If the intended purpose is to rehabilitate a degraded wetland where the soils, hydrology, vegetative community, and biological habitat are to be returned to presettlement conditions, use FOTG Standard 657 - Wetland Restoration.
- If the intended purpose is to rehabilitate a degraded wetland where specific functions and/or values are enhanced beyond presettlement conditions, use FOTG Standard 659 - Wetland Enhancement.
- If the intended purpose is to create a wetland on a site which historically was not a wetland or on a site which was formerly a wetland but will be replaced with a wetland type not naturally occurring on the site, use FOTG Standard 658 - Wetland Creation.
- If the intended purpose is to create a Green Tree Reservoir, use FOTG Standard 644 - Wetland Wildlife Habitat Management.

CRITERIA

General Criteria Applicable To All Purposes Above.

Water levels shall be able to be maintained between 0 to 18 inches in depth over the majority of the area during periods of planned inundation.

Soils shall have moderately slow permeability (less than 0.6 inches per hour) or seasonally high water table within 1.5 feet, to inhibit subsurface drainage and allow for maintenance of designed

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water levels.

Shallow water impoundments require an adequate water supply for re-flooding the impoundment during periods of planned inundation. An adequate method for de-watering the impoundment will be provided during planned drawdowns.

Water control structures and drainage modifications must comply with all Federal, State, and local laws, rules and regulations. The owner is responsible for obtaining all required approvals and for compliance with such laws, rules and regulations.

Other NRCS Standards will be used as appropriate.

Existing drainage systems shall be utilized, removed, or modified as needed to achieve the intended purpose.

Existing wetlands shall not be negatively impacted by this practice.

Native plant species shall be used whenever possible. Known non-native invasive species shall not be used.

Additional Criteria To Provide Migratory Resting And Feeding Areas For Shorebirds.

Flooding shall occur from April 1 to June 15 for spring migrations, and from July 7 to November 1 for fall migrations. Impoundment drawdown will occur over the migration period at a rate of approximately 1 inch drop per week.

Flooding shall occur approximately one month before the first heavy freeze and shall be maintained throughout the winter.

Water levels shall be able to be maintained between 0 to 6 inches in depth over the majority of the area during periods of planned inundation.

CONSIDERATIONS

If soil or climatic conditions preclude the establishment of vegetation on disturbed surfaces and protection is needed, consider the use of non-vegetative means, such as mulches or gravel. In some places, temporary vegetation may be used until permanent vegetation can be established.

To insure that foods are available to **dabbling ducks**, impoundments should be designed to be gradually flooded, inundating new areas of food plants in 4 to 10 inches of water as the unit fills. 2

Consider the effects of the timing of the flooding and drawdown, as well as the type of drawdown, on target plant species and plant species composition (moist soil areas).

Consider varying the drawdown from year to year to replicate natural flooding conditions.

Consider constructing multiple units that can be drawn down and flooded at different times to provide a diversity of habitats.

Consider the target plant species flooding tolerances and the composition of seed in the soil at the site (moist soil areas).

Consider effects on movement of dissolved substances to groundwater and to downstream surface waters.

Consider effects on downstream flows that would affect other water uses or users.

When **turtles** are a species of concern, consider designing the impoundments with gradual slopes that have a south facing aspect. Also consider sites that have soils with high sand content to encourage egg laying.

Nearly level sites will allow larger units while keeping the water depths within the optimum range (requiring fewer dikes). Sites with steeper grades will be more expensive to construct than flatter grades because more dikes will be required to maintain the desired water depths.

Planned units should avoid the main stem of streams or drainage ways to facilitate proper management of water levels.

Consider effects on wetlands or wildlife habitats that would be associated with the practice. For example, reptiles, amphibians and other aquatic species serve as important prey species for waterfowl, raptors, herons, and other wildlife.

Consider planting shrubs such as button bush along the edges of impoundments to serve as food sources for **songbirds**.

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Consider the following optimum site conditions and management considerations for shallow water impoundments:

Factors	Optimum Conditions
Water Supply	<ul style="list-style-type: none"> Independent supply to each unit. Water supply enters at highest elevation.
Water Discharge	<ul style="list-style-type: none"> Independent discharge from each unit. Discharge at lowest elevation for complete drainage. Floor of control structure set at correct level for complete drainage.
Water Control	<ul style="list-style-type: none"> Stoplog structure allowing 2-inch changes in water levels. Adequate spillway capacity to handle storm events. Water control structure capable of draining at least 1 inch per day from the unit. Design multiple units with individual drawdown capabilities to maximize management flexibility.
Unit Size	<ul style="list-style-type: none"> 5 to 100 acres.
Number of Units	<ul style="list-style-type: none"> 3 to 5 units per site to maximize management flexibility.

Adapted from Fredrickson, 1991, Fish and Wildlife Leaflet 13.4.6.

Consider placing loafing logs, stumps and other woody debris in the area for use by **reptiles**.

Consider the need for buffer practices beneficial to wildlife around the perimeter of the site. Plan practices such as FOTG Standard 393 - Filter Strip to limit sedimentation from entering or leaving the management unit, and/or FOTG Standard 386 - Field Border and/or FOTG

Standard 327 - Conservation Cover to create a vegetative buffer between the management unit and adjacent land uses. This buffer should be at least 30 feet, or wider, depending on its purpose. 3

Consider the effects of residual herbicides (moist soil areas).

Consider possible upstream impacts that would affect other water uses or users.

Consider the amount and type of human disturbances in the area and their possible impact on wildlife. Limit disturbances during periods when birds are present and plan screened buffer zones to separate disturbances from the site.

Consider the use of upstream impoundments as a source of water when additional water is needed.

Consider placing levees on the contour to maximize usable area.

When **shorebirds** are the primary species of concern, consider maximizing the areas of very shallow water flooding (0 to 4 inches).

Consider maximizing the area of mudflats during **shorebird** migration periods.

To insure that foods are available for **shorebirds**, flooding should be maintained throughout the winter to enable chironomids and other invertebrates to re-populate and to assure survival of larvae over winter.

Consider shallow re-flooding of a disked, mowed, or harvested field to provide **shorebird** foraging habitat during fall migration.

Consider requesting technical assistance from a NRCS biologist or an IDNR Division of Fish and Wildlife's District Biologist.

PLANS AND SPECIFICATIONS

Plans and specifications for this practice shall be prepared for each site. Plans and specifications shall be recorded using approved specification sheets, job sheets, technical notes, narrative documentation in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

A plan for the operation, maintenance, and management of the shallow water or moist soil

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area shall be developed and recorded using approved job sheets, technical notes, or other forms of acceptable documentation. The plan shall include monitoring and management of the overall site, as well as structural and vegetative measures.

Actions will be carried out to ensure the practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation) such as water level manipulation, moist soil management, planting waterfowl food crops, managing crop residue, prescribed fire, and disking. Repair and upkeep of the practice (maintenance) shall be carried out as needed, such as repair or replacement of vegetative or structural components.

Biological control of undesirable plant species and pests (e.g., using predator or parasitic species) shall be implemented where available and feasible.

All disturbed areas subject to erosion shall be protected.

The use of fertilizers, pesticides and other chemicals will not compromise the intended purpose of this standard.

Measures shall be provided to control outbreaks of noxious weeds and other invasive species in order to comply with state and local noxious weed laws.

Spraying or other control of noxious weeds will be done on a "spot" basis to protect forbs and legumes that benefit native pollinators and other wildlife. All herbicide label requirements and applicable state and federal regulations will be followed.

REFERENCES

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